of their sect must always be *une chapelle en Angleterre.* The framework of the admirable impersonation of Captain Morville is a sort of spirited and masculine amplification of the skeleton of that of little Ruth, in Laneton Parsonage; one of Miss Sewell's minor tales, which, though it has passages of great merit, pleases us less than most of her others.

It is evident that our author has opened within her imagination a mine of no ordinary richness; and after the proof, afforded by her latest publication, of the variety of her powers, we shall look with added interest for those which are to succeed. It is her own fault if the little or the much that she has given us only makes us ask for more. The expectations which she has raised pledge her to the reading public; and we have little fear, unless too restricted and narrow an idea of usefulness should bind, cramp, and enfeeble the powers which have made her so charmingly and so profitably entertaining, that the pledge will not, in the course of a few years, be amply redeemed.

ART. VIII. — *Nature in Disease, illustrated in various Discourses and Essays. To which are added Miscellaneous Writings, chiefly on Medical Subjects.* By JACOB BIGELOW, M. D. Boston: Ticknor & Fields. 1854. 12mo. pp. 391.

THERE have always existed among those devoted to the healing art, not only men of great erudition in their own special vocation, but those who have successfully cultivated, and have contributed to the progress of, the different departments of natural science. By education, the physician is led to study the phenomena of nature, not only as they are manifested in the phases of human suffering, but often incidentally, as exhibited in the different members of the organic world and in the reaction of matter upon matter in its ever-varying forms and conditions. Under these circumstances, it is not remarkable that the natural sciences, in all stages of

their history, should have been very largely indebted to medical men for discoveries and improvements. Cuvier, in his *éloge* on Corvisart, paid a just tribute to the profession, when he acknowledged that it was from men destined to medical pursuits that the Academy had almost always elected those who, as its members, cultivated the natural sciences.

But what was true in times past, as to the direct agency of the medical profession in the progress of these departments of knowledge, more especially of physics, chemistry, zoölogy, and botany, cannot be asserted with equal force in the actual condition of things, and in all probability will never be true again. This is not, however, because medical men have deteriorated in any degree as scientific observers, or are any less than ever disposed to aid in extending the boundaries of human knowledge. In these respects they never occupied a more honorable position; and the minutest details of structure and function, healthy or diseased, as revealed by the scalpel or the microscope, were never investigated with so much zeal and enthusiasm as at the present time.

But in the progress of knowledge, those departments which formerly were accessory to the education of the physician only, or which he cultivated as accomplishments or from taste, have been developed into extended sciences, and thus have given origin to distinct professions. Chemistry, once almost exclusively medical in its bearings, has become a science of immensely broad application in the arts, and is as distinct a calling as that of either of the learned professions; and the chemical professorships, even in medical schools, are frequently filled by those who have never occupied the seats of the medical lecture-room. Anatomy and Physiology, for so many centuries strictly medical in their relations, though they can never be divorced from that profession to which they owe their origin and development, are now cultivated by many whom Medicine will not find enumerated in her ranks. Even Medicine, strictly speaking, has become so extended in its different departments, that one of them may engross all the energies of men actuated by the true spirit of inquiry, and eminent for industry and a high order of intellect. The great tendency of the mind here, as in natural science

generally, is not to diversity, but to specialty; consequently, Medicine has ceased to be a single science, and has literally become an aggregation of sciences. A physician, therefore, who to great proficiency and practical skill in his own vocation adds extensive acquaintance with the collateral sciences, is becoming of less and less common occurrence. His profession, except in rare instances, demands, if he would cultivate it with success, and still more if he would enlarge its boundaries, that all his energies should be concentrated upon one or more points within its limits. In this increasing subdivision of intellectual labor, we have the best evidence of real progress and of accumulated knowledge.

By the general consent of the community in which he has spent an active, honorable, and responsible life, and of the profession to which he belongs, a position has been gratefully accorded to the author of the work here noticed among the most eminent medical men of our country,—a position to which none attain except on the ground of actual merit, and of talents rightly exercised. If to the title at the head of this article were added those of other works of which he is the author, and to these his general reputation for varied learning, we should find ample reason for assigning him a place among the comparatively few who have been able to cultivate their own profession with that assiduity and fidelity which insure distinguished success, and at the same time have extended their inquiries into other departments of knowledge, have studied the laws of physical phenomena, or have described and classified organic forms.

In the early periods of his professional life, Dr. Bigelow devoted himself with all the zeal of a true naturalist to the practical cultivation of botanical studies, more especially to the investigation of the Flora of New England; at a time, it should be remembered, when this field had been explored but by few, and when little had been done towards a systematic description of genera and species. To render his labor as complete as possible, extensive explorations were made in different States; and in the year 1816, in company with the distinguished botanist, Dr. Francis Boott, and others, was made one of the earliest botanical surveys through the differ-

ent zones of vegetation on the slopes of Mount Washington. It is interesting to notice in Dr. Bigelow's instructive report of the expedition, that among the plants collected were species that are also natives of Siberia, Lapland, Greenland, and Labrador, — a fact indicating the existence of a much wider geographical distribution of one and the same species than is met with in the animal kingdom, but perfectly in accordance with the recent investigations of J. D. Hooker and Robert Brown, who have shown that a large number of the flowering plants of Europe are indigenous even in Australia and New Zealand. Dr. Bigelow's botanical contributions, however, need no extended notice here; hundreds of students throughout New England, with the aid of his "Florula Bostoniensis," have become familiar with the different races of plants which belong to this section of the country; and his "American Medical Botany," replete with original observations, has been regarded by all subsequent writers as of standard authority, and as one of the most honorable contributions to American science. In connection with his botanical studies should be mentioned his interest in the physical sciences, especially in their practical applications, which led to his appointment to the Rumford Professorship in Harvard University. As a text-book to the course of lectures which this office required, he prepared the "Elements of Technology," which in successive editions has been very extensively used by students and general readers.

Dr. Bigelow was elected, in the year 1815, to the chair of Materia Medica in the Massachusetts Medical College, which he has held with honor to the institution up to the present time. After thirty years of faithful service, his resignation has just been made public. As a lecturer, with a thorough knowledge of his department, he combined a clear and demonstrative mode of presenting his subject, the occasional expression of genuine humor, and a discriminating and healthy scepticism with regard to the efficacy of a large number of the almost endless list of medicinal substances. As will be seen by reference to one of the articles in the volume before us, he has been a zealous advocate of whatever might simplify the pharmacopœia of the United States, by divesting

it of the redundancies in European systems. He rather approved of the proceeding of the Russian autocrat, "who ordered his medical attendant, Sir James Wylie, to prepare a *Pharmacopœia Russica*, which he introduced by a ukase throughout his extensive dominions." There have been but few medical works published in this country which have had a greater popularity than Dr. Bigelow's "Supplement to the Pharmacopœia of the United States"; and the true secret of its success was found in the well-digested and truly practical nature of its contents.

The work entitled "Nature in Disease" contains sixteen discourses and essays on various professional and other subjects, many of which have been previously made public. The larger portion of them are eminently practical in their nature, in point of style have the great merit of conciseness and perspicuity, and are strictly logical in their trains of reasoning. They give abundant evidence of cool and dispassionate observation, — of the power to discriminate between facts and opinions, and to sift and analyze phenomena till their true import is made apparent. There is a striking contrast between the sound, practical views contained in these discourses, and the speculations of those who, like Rush, have labored with all the energies of an active mind misapplied to force everything into subordination to a favorite dogma. If there be any point with regard to which the reader might be led astray, it would be, perhaps, in relation to the uncertainty of medicine, of which he might form an exaggerated idea, unless he remembered that the author's object is not to contrast the certainties with the uncertainties, but to exhibit the latter in their true light, to expose the fallacies of unsound opinions, and to face the truth, however unwelcome it may be.

The discourse "On Self-limited Diseases," pronounced at one of the annual meetings of the Massachusetts Medical Society nearly twenty years ago, contains independent views, which, at the time they were delivered, clashed somewhat harshly with the ideas then prevalent among physicians, not only in this country, but in Europe. In medicine, as in all other departments of human knowledge, certain articles of belief, which are in reality fallacious, become so firmly fixed in

the mind as to appear in the light of ultimate truths, and are transmitted from one generation to another as unalterable rules of action. This tendency is burlesqued by Molière, in the character of the physician who insisted that his patient could not be dead, because it was contrary to the teachings of Hippocrates that a man should die of the alleged malady before the expiration of a certain number of days. But the clearer light which gradually accumulated observations cast upon disease induces the physician to approach it with an entirely different set of leading ideas; and the result is, that, while knowledge increases in one direction, doubt springs up in another, and some of those doctrines which seemed to contain reliable truths are shown to be unequivocal errors.

One of the surest indications of a well-balanced mind is found in a readiness to appreciate the value of new facts which extend the limits of science, and an equal readiness to perceive the real nature of errors which have obtained general credence and still remain serious obstacles to progress; and one of the best services which such a mind can render to others is to expose the falseness of their errors, and to teach them to unlearn what in good faith they had taken great pains to acquire. To aid in rendering such a service was the intention of this discourse. The belief was generally prevalent among medical men, that certain diseases were capable of being "cut short," or at least of being very much modified, by professional treatment. It is within the memory of a large portion of the profession, that typhoid fever was supposed to be a disease which, in its early stages at least, might be so far counteracted by a bold attack as to reduce to a few days' duration a siege which otherwise might be continued for weeks, exposing the patient to death, either from the severity of the disease itself, or from the accidental complications which sometimes are conjoined with it, even in its milder forms. In France, scepticism in relation to the effects of treatment in this and other diseases had already manifested itself, and the observations of two profound observers, Louis and Andral, had justified it on solid grounds, so that the *expectant* or waiting system was substituted for that which relies upon the administration of remedies. In this country these views, it is

believed, obtained their first firm foothold in Boston, and Dr. Bigelow was among the earliest to adopt and promulgate them in his intercourse with his professional brethren as well as in his public teaching; nor do we remember to have seen them elsewhere so broadly and definitely stated, or so extensively applied, as in this discourse. It recognizes the existence of a large class of diseases, which, so far from being amenable, as regards their essential nature, to the effects of remedies, as was generally suspected or believed, are not materially modified by them. To these maladies the term *self-limited* is applied, the precise acceptation of which may be understood from the following extracts.

"By a self-limited disease, I would be understood to express one which receives limits from its own nature, and not from foreign influences; one which, after it has obtained foothold in the system, cannot, in the present state of our knowledge, be eradicated, or abridged, by art, — but to which there is due a certain succession of processes, to be completed in a certain time; which time and processes may vary with the constitution and condition of the patient, and may tend to death, or to recovery, but are not known to be shortened, or greatly changed, by medical treatment.

"These expressions are not intended to apply to the palliation of diseases, for he who turns a pillow, or administers a seasonable draught of water to a patient, palliates his sufferings; but they apply to the more important consideration of removing diseases themselves through medical means." — p. 4.

"In proceeding to enumerate more precisely some of the diseases which appear to me to be self-limited in their character, I approach the subject with diffidence. I am aware that the works of medical writers, and especially of medical compilers, teem with remedies and modes of treatment for all diseases; and that, in the morbid affections of which we speak, remedies are often urged with zeal and confidence, even though sometimes of an opposite character. Moreover, in many places, at the present day, a charm is popularly attached to what is called an active, bold, or heroic practice; and a corresponding reproach awaits the opposite course, which is cautious, palliative, and expectant. In regard to the diseases which have been called self-limited, I would not be understood to deny that remedies capable of removing them may exist; I would only assert, that they have not yet been proved to exist." — pp. 9, 10.

The class of self-limited diseases, which is not established

as a natural and permanent, but as a temporary and expedient one, includes all those febrile affections which are attended with some eruption upon the skin, as Measles, Scarlet Fever, Small-pox, and Typhoid Fever; also certain non-eruptive, contagious diseases, as Hooping-cough, Mumps, and others. It would be foreign to the design of our journal to enter into an exposition of the argument as applied to these maladies; it is enough that the doctrines of this discourse, though they may still be objected to by a few as bordering upon scepticism, have been very generally accepted and acted upon by the most enlightened physicians. The only object had in view in alluding to them now is to give an illustration of the character of the author's writings, and to mention an instance of an important service rendered in promulgating sound views, by the adoption of which many are saved from well-meant, but useless, remedial treatment.*

The two discourses, "On the Treatment of Disease," and "On the Medical Profession, and Quackery," were delivered, on different occasions, to classes of medical students at the opening of the annual course of lectures at the Massachusetts Medical College in Boston, and have for their principal aim the discussion of several subjects, with regard to which it is important that those entering upon their professional studies should form correct ideas. The author deprecates the tendency so general among American students to hurry into and through their period of pupilage. One of the legitimate consequences of such a course is, that there annually go forth into the world some who are not competent to meet the emergencies of their professional life, and who sooner or later are placed in positions of great responsibility, where discretion, skill, and energy can alone conduct them to a happy issue. It is then that the young physician finds himself judged by the true standard, and the question of success or failure summarily answered. In this country it will be impossible to prevent the incompetent from exercising the privi-

* In speaking of these diseases as being self-limited, and not amenable to treatment, reference is had to the diseases themselves only, and not to their accidents or complications, which *are* controlled or modified by remedies, and open a wide field for the exercise of medical skill.

leges of the diploma. There are, among our many medical schools, some that were established as private speculations, or for the purpose of extending the influence of those who control them. In these the standard is low, and the means of instruction are wholly inadequate. Yet we believe that the average standard of medical education in the United States is constantly improving, and that, as an offset for those whose education is deficient, there exists a constantly increasing number of students who prolong their studies beyond the required period, and who, after having finished the ordinary curriculum of our own schools, resort to those of London, Edinburgh, Paris, or Vienna.

Among the subjects touched upon in these two discourses is the position of medicine as a science. Notwithstanding the place justly assigned to it in its present condition, its natural affinities are, as we think, with the exact sciences. Natural operations, as soon as the mind gains an insight into them, are always found subordinate to a definite law; and nothing has yet come to light which shows that the phenomena of disease are an exception to this rule. We speak of anomalies and abnormal conditions; but these terms are provisional, and are equivalent to an acknowledgment of ignorance. The history of medicine, as well as of other sciences, offers instances enough where phenomena, supposed to be in the highest degree abnormal, have, by the extension of knowledge, become more or less explicable and normal. A single illustration may be cited in the case of what are called "freaks of nature," "*lusus naturæ*," and "monstrosities." These, in the absence of any definite explanation, have been regarded by some as "manifestations of Divine wrath," by others as "devices of the Devil," or, as one of the names indicates, an indulgence on the part of Nature in a sportive propensity. Medical men have generally been satisfied with calling them "deviations," "anomalies," "vices of conformation," and other names, which either indicate very obvious facts or involve some untenable hypothesis. The embryological reseraches of Geoffrey St. Hilaire in France, and of Meckel and others in Germany, which paved the way for so much that has since been done in zoölogy and philo-

sophical anatomy, proved beyond a question that a large proportion of the so-called anomalies of conformation are to be accounted for by the persistence of embryonic conditions, which in general have but a temporary existence. Thus, to take a simple instance, one of the anomalies of the heart is the absence of a division between the two ventricles, — a condition which exists in all hearts during early fœtal life. One of the anomalies of the hands and feet is the existence of a web between the fingers and toes, and embryology demonstrates to us that in the formative stage of these parts they are webbed in man as well as in all vertebrated animals, and the persistence of this condition gives the webbed foot of the aquatic animals, which is normal, and the webbed fingers or toes in man, which are called abnormal. The same explanation applies to many of the instances of congenital deficiencies of limbs wholly or in part, to harelips, and other conditions which are more complex. The anomalies just referred to constitute but one of several groups, and come under the general denomination of "arrests of development." It is true, that, in applying embryology, we only explain *how*, not *why*, these deviations occur; still it proves to us that they are amenable to a natural law. Similar advances will no doubt be made in time with regard to diseases which, though now wholly inexplicable, will hereafter be found to conform to some general principle; and as the anomalies disappear, the claims of medicine as a science will become stronger and stronger, demonstrating the presence of "nature in disease." Cuvier, on one occasion, in the presence of some of the most distinguished naturalists of France, who were sceptical as to the correctness of his osteological principles, was proceeding to uncover the skeleton of a fossil animal, a few fragments only of which protruded from the mass of stone in which it was buried; the rest had never yet been exposed to the eye of man. Before the chisel was applied, he remarked that the true test of science was the power which it conferred upon us of foreseeing events, or predicting results. As one part after another of the fossil was uncovered, his previously expressed opinion of its details was fully verified, showing that comparative osteology

in his hands had truly become a science. In medicine, how few are the instances in which the physician exercises any such power as that just referred to! Who, in fact, would dare to predict in a given case the issue of any of our diseases of ordinary severity? Medicine, therefore, for satisfactory reasons, must for the present at least find its place among the inexact sciences, but on that account does not necessarily remain a useless one.

"It would at first seem that the exact sciences were those most worthy the cultivation of intelligent minds, inasmuch as they lead to satisfactory, and therefore to gratifying results; and because, in their more elevated departments, they involve and require some of the highest reaches of the human intellect. But in the opinions of mankind, as evinced by their practice, the opposite judgment prevails, and probably nine tenths of the labor of educated and intellectual men are employed on studies which are, in their nature, uncertain and conjectural.

"The cause of this great ascendency in the attention given to the inexact sciences is to be found in the vast and paramount importance of their subjects, and also in the difficulty of consummating their great ends. It is much more important to mankind to know how to avoid anarchy and crime, war, famine, poverty and pestilence, than it is to know that the planet Saturn has a ring, or that a lily has six stamens, that light can be polarized, or that potass can be decomposed. Yet, while the latter propositions are susceptible of absolute demonstration, the former processes, which bear directly on human happiness or misery, are frequently removed beyond our foresight or control. The wisest men often fail to influence the destinies of states, families, and individuals, and the shrewdest calculators are baffled in regard to a coming crop, a pecuniary crisis, a glut in the commercial market, or a change in the public morals. Nevertheless, the wise man, conscious of superior talent, and the philanthropist desirous of the public weal, and even the interested man who looks to his personal advantage and progress, must give themselves and their energies to studies which involve the immediate wants of their fellow-men, even though their best directed efforts should fail of the desired results. And the simple reason is, that if the best qualified minds decline to undertake this task, it will most assuredly be assumed by the ignorant and presumptuous.

"Pre-eminent among the inexact and speculative sciences stands *practical medicine*, a science older than civilization, cultivated and honored in all ages, powerful for good or for evil, progressive in its

character, but still unsettled in its principles; remunerative in fame and fortune to its successful cultivators, and rich in the fruits of a good conscience to its honest votaries. Encumbered as it is with difficulty, fallacy, and doubt, medicine yet constitutes one of the most attractive of the learned professions. It is largely represented in every city, village, and hamlet. Its imperfections are lost sight of in the overwhelming importance of its objects. The living look to it for succor, — the dying call on it for rescue.

"The greatest boons and the most important objects presented to our aspirations in this life are not to be approached through paths which are straight and unmistakable. The avenues to most of them are shadowed by doubts or clogged with incessant obstacles. Next to the spiritual welfare of men, the preservation of their lives, the peace and safety of their communities, the acquirement and preservation of their worldly goods, are among the objects which take strongest hold on their desires. Yet grave doubts are justifiable, whether any precise means have yet been agreed upon by which these desirable ends can with certainty be attained. And if any one deems it a reproach on medicine that its cultivators have not arrived at a common faith and practice, let him consider whether the laborers in other fields, however honest their intentions, are agreed in their theological creeds and political platforms." — pp. 60 – 63.

In relation to quackery, Dr. Bigelow expresses the rather humiliating conviction, that it is a standing want in the community, since there always exists a certain proportion of persons whose mental constitution, whose credulity, whose "wondering faculty," as Goldsmith called it, can be satisfied with nothing less than the most preposterous pretensions. Even among savage races the quack is not an unknown element in society; for Catlin recognized a species of the genus among our Indians in the Far West, and Sir John Franklin gives an amusing description of the manner in which the "medicine" of one who made great pretensions was put to the test, and of the great mortification of the "medicine man" himself which ensued. Certain it is, that empiricism is rife amongst us, and, if we compare the past and the present, is rapidly increasing, though the means by which it continues to gain and keep a foothold among the public are constantly changing. The weapon-salve, the sympathetic powder, and the tractors, are no longer thought of;

but their places are supplied by an infinity of other delusive inventions, which keep pace with, or rather are suggested by, the improvements in science.

Quackery is by no means exclusively confined to the ignorant. Ignorance and empiricism very naturally go together, and generally do; but ignorance is not inconsistent with strict honesty of purpose, and the most arrogant charlatanism is sometimes met with among the truly skilled and learned. The diploma is not, therefore, necessarily the diagnostic sign by which the quack and impostor are distinguished from the honorable and well-educated physician. Odium has been, from time to time, justly attached to medical men for the grossest empiricism, as in the case of Paracelsus, and of the celebrated Dr. Robert Fludd (or Robertus a Fluctibus, as he preferred to style himself), and of others. Nevertheless, to the credit of medical men be it said, that as a profession, in their collective capacity, they have always actively discountenanced it, and, with good intentions, though sometimes, perhaps, by injudicious means, have attempted to eradicate it wherever found, whether in or out of the profession. The remedy for quackery in this country, it is quite clear, cannot be found in legislation or in medical police; at all events, thus far both have proved only partially effectual. Whatever action may be deemed necessary with regard to it, the soundness of the views contained in the following paragraphs cannot be questioned.

"In your demeanor in regard to quacks, you should keep aloof from them, and trouble yourselves little about them. Admit the general fact, that the race always do and must exist in society; that they are wanted by the credulity of a particular class of minds; that the fall of one dishonest pretender, or one visionary sect, is sure to be replaced by the elevation of another; therefore it little concerns you to know what particular imposition has the ascendency at any given time. When you are interrogated in regard to a specific subject of this kind, you should make a reasonable, cogent, and dispassionate answer, always avoiding the appearance of warmth and especially of self-interest; and you may be sure that a majority of the public will be on the side of truth. As far as my observation extends, three quarters at least of the families in Boston and New England are in the hands of regular

practitioners. The remaining fraction, more or less, consists partly of minds so constituted that they require the marvellous as a portion of their necessary food, and partly of unfortunate beings, suffering the inevitable lot of humanity, who, having failed to obtain relief from the ordinary resources of medicine, seek for temporary encouragement in the dishonest assurances of any who will promise to cure them. The first class is the dog in the fable, catching at shadows; the last is the drowning man catching at straws.

"Above all, if you would discountenance quackery, take care that you become not quacks yourselves. Charlatanism consists not so much in ignorance, as in dishonesty and deception. In your intercourse with patients, cultivate a spirit of fidelity, candor, and truth. Endeavor to understand yourselves and your science, weigh justly your own powers, and profess only what you can accomplish. If you announce to your patients that you will cure incurable diseases, or cut short those which have a necessary period of duration, you do not speak the truth, you merely blind your patient, while you throw the die for a fortuitous result, a game at which the veriest mountebank may at any time beat you. The profession as a body are often unpopular with a large and sagacious part of the community, because they so frequently disappoint the expectations they have allowed themselves to raise. You may safely undertake and promise to cure diseases which you know to be curable, to alleviate others which you know to be not so, and to perform what art and science can do towards conducting doubtful and dangerous cases to a happy issue. But this is all you can accomplish or promise. The skilful mariner may steer his ship through a dangerous navigation, but he cannot control the wind nor arrest the storm. Nor would he gain reputation by professing to do so." — pp. 125 – 128.

"An honest and independent practitioner, and especially a member of the Massachusetts Medical Society, should never be induced to give his counsel, or his aid in any shape, to empiricism and dishonesty, whether it occur among those who are within or without the pale of its membership. And no consideration of gain or notoriety should induce those, whose age or standing causes them to be resorted to for consultation, to lend their influence or countenance to encourage either the delusions of those who are honest, or the practices of those who are not.

"If quackery, individual or gregarious, is ever to be eradicated, or even abated, in civilized society, it must be done by enlightening the public mind in regard to the true powers of medicine. The community must be made to understand that there are certain things which medicine can do, and certain other things which it cannot do; that

some diseases are curable by active interference, and others by time and nature alone; that true medical skill lies in discrimination and prognosis, and judicious adaptation of management, more than in assumed therapeutic power, in regard to special agents; and that he who professes to cure by medicine a self-limited fever, is as much an impostor, or deluded man, as he who pretends to do the same thing with a fractured bone or incised wound. Nothing so much shakes the confidence of mankind in the medical profession as unfulfilled promises; nothing so much strengthens this confidence, as fair-dealing exhibited in an earnest requirement and fearless expression of the truth. Such a course, by commending itself to the sensible and enlightened, may be expected, sooner or later, in some measure to influence the unreasonable and ignorant, — much sooner, indeed, than a warfare carried on in the arena of empiricism with its own weapons." — pp. 107 – 109.

The following paragraph is quoted for the correctness of the delineation which it contains of the truly great physician. No illustration from life could be more appropriate than that alluded to in the last sentence, of one honored and revered by all, — a physician whose reputation for great professional acquirements, for integrity, for judicial fairness of mind, and, above all, for moral dignity of character, does not suffer by comparison with the noblest examples.

"If the question be asked, what makes a great physician, and one who is appealed to by his peers, and by the discerning portion of the public, for counsel in difficult cases, I would answer, that *he is a great physician who, above other men, understands diagnosis.* It is not he who promises to cure all maladies, who has a remedy ready for every symptom, or one remedy for all symptoms; who boasts that success never fails him, when his daily history gives the lie to such assertions. It is rather he, who, with just discrimination, looks at a case in all its difficulties; who to habits of correct reasoning adds the acquirements obtained from study and observation; who is trustworthy in common things for his common sense, and in professional things for his judgment, learning, and experience; who forms his opinion positive or approximative, according to the evidence; who looks at the necessary results of inevitable causes; who promptly does what man may do of good, and carefully avoids what he may do of evil. Examples are rare of this perfection, yet for an approach to such a standard of professional excellence, I would venture to direct your remembrance to the venerable ex-professor, fortunately yet among us, of the theory and practice in this University." — pp. 67, 68.

In the article "On the Poisonous Effects of the American Partridge, or Ruffed Grouse," ten cases, out of a larger number observed, are recorded of persons who have had very alarming, though in no case fatal, symptoms soon after partaking of this article of diet, which is so much of a favorite with epicures. Although the number of instances of deleterious effects is very small compared with the whole number of those who annually eat partridges, yet there can be no question as to the relation of cause and effect. Nevertheless, in a work called "The American Sportsman," recently published, evidently prepared with great care, and, so far as we can judge, by one who is an authority, the following memorandum occurs: "The prevalent opinion that the flesh of the American pheasant becomes poisonous by partaking of the leaves and berries of the mountain laurel is all fallacious, and without hesitation may be classed with the list of vulgar errors." From the absence of any acknowledgment on the part of the author that the flesh is ever poisonous, we presume that he is sceptical not only as to the cause, but as to the fact, of poisoning. The cases occurring in the practice of different physicians, and brought together by Dr. Bigelow, will satisfy the most incredulous. Below are given the results of the examination of the different cases observed.

"From a general analysis of the symptoms produced, it appears that under certain circumstances the flesh of the partridge acts as a direct sedative poison, impairing the functions of the brain, and, in connection, those of the digestive and circulating systems. The cerebral symptoms, in a majority of cases, have been vertigo, loss of sight, tinitus aurium, and in bad cases general loss of the power of sensation and voluntary motion. Respiration has been slow, sometimes to a great degree. In the circulating system there has been syncope, feeble and sometimes irregular action of the heart; weak, slow, and sometimes imperceptible pulse; cold surface, and pale or livid complexion. In the digestive system there is oppression, nausea with tendency to vomit, and in many cases pain in the abdomen extending through to the back. In more rare cases pain has been felt in the head and limbs.

"The foregoing morbid symptoms have mostly appeared within two or three hours after taking the food. But instances have occurred in which persons have been taken before leaving the table."—p. 284.

The earliest of Dr. Bigelow's published articles contained in this volume was that "On the Treatment of Injuries occasioned by Fire and Heated Substances," being a part of a Boylston prize dissertation for 1812. In this dissertation are recorded experiments made for the purpose of determining the effects of different kinds of treatment upon burns, in regard to which so much discrepancy exists. Ordinarily, the great difficulty in testing the value of two different modes of treatment is found in the impossibility of using them under precisely similar circumstances as to the severity of the disease and the peculiar conditions of the sufferer, — so that the observer finds it impossible to decide how far the difference in results is to be attributed to the difference in treatment, and how far to the difference of circumstances in the individuals affected. Dr. Bigelow's experiments were made upon the right and left ears of the same rabbit, both of which received the same injury, not only in kind but in degree, and where of course all the circumstances may be regarded as having been precisely alike, so that whatever difference existed in the results would be attributable to the treatment alone. The experiment reminds us of the Hunterian mode of investigation.

The article on "Pneumothorax," though of a strictly professional nature, ought to receive a passing notice, since it gives another instance of the practical nature of the author's mind. One of the most prominent symptoms of the disease in question is a sound to which the term "metallic tinkling" has been very appropriately applied, and which had been differently explained by different observers. Nearly all the explanations were theoretical, and only one observer suggests a cause similar to that proved to exist by Dr. Bigelow. By a series of accurate observations upon the living, and of well-devised experiments upon the dead body, one cause at least was satisfactorily ascertained, and the sound referred to was so precisely reproduced, that in the minds of very accurate observers no question existed as to the identity. The explanation has been acknowledged in this country and in Europe. This result is referred to for another reason, namely, because it illustrates one of the phases of medical investigations which indicate an affinity with the exact sciences. Those who have

been conversant with the hospitals of Paris or Vienna know very well that the phenomena of diseases of the chest are studied with as much experimental accuracy as if the problem were one of the steam-engine or of the air-pump; they have been witnesses too of the patient study of details in all stages of disease, and of the accuracy with which expressed opinions have been verified by examinations after death. The stethoscope has certainly been one of the most important instruments in conducting medical investigations upon a scientific basis.

The following opinions from the essay "On Coffee and Tea" are selected for the benefit of those who are desirous of information as to the effects, deleterious or otherwise, of these universal articles of diet.

"During the extensive trial which has been made all over the world, as to the effect of coffee upon the health, no small diversity of opinion has existed in regard to its specific powers. Of the properties ascribed to it, two seem better established than any others. These are its property of assisting digestion, and that of obviating drowsiness. Coffee, when taken into the stomach, usually creates a pleasing sense of vigor in that organ, it moderates alimentary fermentation, takes off the feeling of distention and heaviness occasioned by over-eating, counteracts in some degree the fumes of wine, and produces a lightness and hilarity of mind, more moderate but more permanent than that occasioned by vinous or spirituous liquors. The custom derived from the French of drinking coffee after dinner, is beneficial, and powerfully promotes the process of digestion. It is known to epicures of most countries, that a cup of strong coffee, at the end of some hours spent at the table, enables them to continue their functions, both of body and mind, to a greater extent than would have been done under any other assistance.

"It is well known that coffee is strongly promotive of watchfulness, and enables us to resist for a long time the approaches of sleep. Students, whose lucubrations occupy a considerable portion of the night, find a great increase of the vigilance and vigor of their faculties, derived from the use of both coffee and tea. In fact, the long habit of drinking these articles renders us so dependent on them, for the power of keeping the mind awake and active, that a change from them to any other kind of diet creates in most persons, at least for a time, a drowsiness and dulness of intellect. Hence it is common to hear milk and chocolate accused of creating sleepiness, an effect which arises, not from

any real soporific influence in those articles, but from the change of diet, and the want of the customary stimulus of coffee and tea. The Turks and Arabians consume large quantities of coffee, because it acts as an antidote to the stupefying effect of opium, to the abuse of which those nations are generally addicted. It has already been mentioned, and is a fact which every practitioner should remember, that perhaps no antidotal substance exerts so powerful an agency in counteracting the effect not only of opium, but of alcohol and the whole tribe of narcotics, as a seasonable draught of strong coffee.

"Many complaints have been ascribed to the frequent and excessive use of coffee, such as tremors, headache, vertigo, and some more serious disorders. These complaints are most apt to appear when coffee has been taken alone, without a sufficient quantity of nourishment accompanying it. It is common for physicians, in the course of practice, to hear complaints of a sinking at the stomach, universal trembling of the limbs, and a loss of muscular power, coming on at eleven or twelve in the morning, and incapacitating the patient for business. These complaints I have, in more than half the instances which have come under my notice, been able to trace to a cup or two of strong coffee, or perhaps tea, taken for breakfast without a particle of nourishment, or at least without a sufficient quantity to support the system, during and after the stimulant operation of these active liquids. I have generally found these complaints to be most effectually relieved by the simple remedy of eating, and cured either by increasing the quantity and quality of nourishment taken in the morning, or by exchanging the coffee for cocoa, chocolate, or milk."— pp. 294 – 297.

"Tea, as it is brought to us in its dry state, has the effect of creating a lightness and exhilaration of mind, an increased action of the stomach in the process of digestion, and, above all, a vigilance and increased power of mental exertion. Dr. Johnson is recorded to have made the teapot the companion of his lucubrations, and to have taken immense quantities of its contents, to sustain the energies of his powerful mind during the prodigious labors which he accomplished. In its other properties tea is astringent and antiseptic. It visibly produces no injurious effect upon the generality of persons who take it from infancy to old age. It is remarked by Desfontaines, that no vegetable is known, the infusion of which can be drunk so often and in such large quantities, without disgust. The Chinese regard it as highly salubrious. They mix with it neither milk nor sugar, but drink it pure, sometimes holding a piece of sugar in the mouth. The constant use which this people have made of it for so many ages seems to prove that, when rightly

prepared, it is destitute at least of injurious properties. Professor Kalm states, that tea is the best corrector of bad water, and that he derived from it great comfort and benefit during the illness and inconvenience of a long sea voyage. It is, in fact, one of the best remedies for slight sea-sickness. An extract made of tea is in high repute as a medicine in China, and is said to remove obstructions and promote perspiration. Dr. Lettsom found that tea given in fine powder, in doses of thirty grains once in three or four hours, produced nausea and diaphoresis, and appeared to diminish the heat accompanying inflammatory complaints. The finer and more green is the tea, the more powerful are its specific effects.

"Nevertheless, a variety of injurious consequences have been ascribed to tea, and many no doubt *have* arisen, either from its abuse, or from the idiosyncrasies of those who have been the subjects of its influence. Some persons complain that, after taking freely of tea, a nervous agitation of the whole frame commences. The hands tremble, so as to be incapable of writing; the limbs experience a loss of power, and perform their office with difficulty; at the same time a confusion of ideas incapacitates the mind for any close or active train of thinking. There are even some persons, in whom tea produces great nausea and sickness, with spasmodic pains of the stomach and bowels, and an uncontrollable agitation of spirits on the least hurry, noise, or disturbance. These symptoms, however, are the effect of some peculiarity in the constitution, a great mobility of the nervous system, and generally of a slender, enfeebled, and effeminate frame. They may, however, arise in all persons from an excessive use, either as it respects the quantity or strength of the tea, or the want of nourishment taken at the same time. I believe the number of persons will be found to be exceedingly small, who cannot take tea in moderate quantities and accompanied by food, without any inconvenience whatever.

"The inquiry is often made of physicans, Which is the most wholesome article of food, coffee or tea? The prejudices of most persons are ranged on one side or the other of this question, and even practitioners themselves are apt to fall into one or the other extreme. One of the oldest and most distinguished physicians of this city,* being asked what was the difference in effect between tea and coffee, replied, 'One is poison, and the other not.' A physician of equal eminence, in Philadelphia,† decided on the properties of the two with equal positiveness, taking, however, the opposite side of the question. The truth is, that there are scarcely any two substances in the materia medica which

* Dr. S. Danforth.

† Dr. B. S. Barton.

bear a closer relation, or more nearly resemble each other, in their properties, than coffee and tea. Tea is more astringent than coffee, and coffee of the strength commonly used is somewhat more stimulating than tea, — otherwise the differences which have been ascribed to them have mostly arisen from the accidental opinions of individuals, whose taste and idiosyncrasies have rendered them fond of the one and averse to the other." — pp. 310 – 314.

In the preceding pages we have referred to those opinions especially which are almost wholly of a professional nature. The instructive discourse "On the Burial of the Dead" is one which will most interest the general reader, and will recall to the memory of all the author's untiring devotion to the cemetery at Mount Auburn, of which he was the originator, and in the control of which, through its whole history, he has been the master-spirit. He may well feel an honest pride in the results of his foresight, and in the annually increasing interest attached to this burial-place for the dead, which has become sacred by so many hallowed associations.

It has been said of distinguished physicians, that what they leave in writing comprises the least of the services which they have rendered others. This remark is unquestionably applicable here. Whatever value may be attached to the printed volumes referred to in the preceding pages, there will yet remain more than forty years' service in active professional life, of which there is no other record than the admiring respect of those who have received the benefits of the author's profound judgment, his devotion to the sick, and his consummate practical skill.